E-ISSN: 3078-9117
P-ISSN: 3078-9109
www.hygienejournal.com
JHCHN 2025; 2(1): 08-15
Received: 15-03-2025
Accepted: 18-04-2025

Tanvir Akter
School of Nursing and Midwifery, Rajshahi Medical Nursing College, Rajshahi, Bangladesh

Corresponding Author:
Tanvir Akter
School of Nursing and Midwifery, Rajshahi Medical Nursing College, Rajshahi, Bangladesh

Community nursing-led hygiene campaigns: A narrative review of their role in combating waterborne diseases

Tanvir Akter

DOI: https://www.doi.org/10.33545/30789109.2025.v2.i1.A.7

Abstract
Waterborne diseases such as cholera, typhoid, dysentery, and hepatitis A continue to impose a heavy public health burden, particularly in low- and middle-income countries where access to safe water, Sanitation and Hygiene (WASH) services remains limited. Community Health Nurses (CHNs), with their direct interface with underserved populations, play a critical role in leading hygiene education and behavior change campaigns aimed at mitigating these preventable illnesses. This narrative review examines the role, strategies, and effectiveness of community nursing-led hygiene campaigns in combating waterborne diseases, based on analysis of secondary data sources including peer-reviewed publications, global health reports, and program evaluations. The review identifies a range of strategies employed by CHNs such as school-based hygiene sessions, door-to-door visits, participatory learning tools, and distribution of hygiene kits-designed to enhance knowledge and promote sustainable hygiene practices at the grassroots level. Evidence indicates that such nurse-led interventions have led to improved handwashing behaviors, safer water storage, increased latrine use, and reduced disease outbreaks in multiple regions, particularly in sub-Saharan Africa and South Asia. Despite these successes, significant challenges persist, including limited funding, sociocultural barriers, lack of training, and gaps in policy support and intersect oral collaboration. The review highlights the need for greater investment in nurse training, inclusion of CHNs in national WASH strategies, and enhanced community engagement to ensure long-term sustainability of hygiene interventions. In conclusion, community health nurses serve as essential change agents in public health. Their leadership in hygiene campaigns not only improves immediate health outcomes but also contributes to long-term community resilience against waterborne diseases. Strengthening this role through policy and programmatic support can significantly advance global public health goals.

Keywords: WASH, community health nursing, hygiene campaigns, waterborne diseases, public health, behavioral change, sanitation promotion

Introduction
Waterborne diseases continue to constitute one of the most persistent and preventable causes of morbidity and mortality globally, particularly affecting low- and middle-income countries (LMICs) where access to safe water, adequate sanitation, and hygiene (WASH) infrastructure is often lacking. These diseases, including cholera, typhoid fever, dysentery, hepatitis A, and various forms of parasitic infections, are predominantly transmitted through the ingestion of contaminated water or food, poor hand hygiene, and unsanitary living environments. According to the World Health Organization (WHO), over 2 billion people worldwide consume water contaminated with feces, and at least 829,000 people die each year due to diarrhea caused by unsafe water, sanitation, and hygiene practices (WHO, 2022). The burden falls disproportionately on children under five, Immunocompromised individuals, and populations residing in informal settlements, disaster zones, or conflict-affected areas. In this public health landscape, Community Health Nurses (CHNs) have emerged as a key workforce capable of driving sustainable change through localized, behavior-centered interventions. Their proximity to the population, cultural understanding, and integrative role in community outreach, preventive care, and education make them ideal agents for implementing hygiene campaigns at the grassroots level. These nurse-led campaigns are designed not merely to inform but to inspire long-term behavior change through education, community engagement, demonstration, and repeated interaction.

Hygiene campaigns are an essential component of disease prevention strategies, particularly in areas where traditional public health infrastructure may be insufficient or fragmented. Community health nurses are often the first point of contact between public health systems and the local population. They not only provide direct care but also facilitate knowledge transfer, build trust, and monitor hygiene practices over time. This positions them uniquely to bridge the gap between national health policy and household-level behavior. Over the last two decades, a growing body of evidence has highlighted the importance of hygiene promotion in controlling the spread of infectious diseases. In particular, nurse-led interventions have contributed significantly to reducing the incidence of waterborne illnesses through structured education programs, participatory outreach activities, and household-level counseling. For example, during the 2010 cholera outbreak in Haiti, CHNs played a pivotal role in educating displaced populations on oral rehydration, water purification, and latrine use. Their work was critical in curbing the initial spread of the disease (CDC, 2011) [4]. Similarly, in India and Bangladesh, CHNs have led school-based and maternal health-centered sanitation campaigns that have resulted in measurable reductions in diarrhea, improved hand hygiene practices, and greater access to household toilets. These interventions are often delivered in settings that face significant logistical and cultural challenges. Whether in flood-prone regions, urban slums, or rural communities, community nurses must navigate limited resources, deep-rooted traditions, and a general mistrust of external actors. Yet their established relationships within the community and sustained presence allow them to initiate and support behavior change in ways that are culturally sensitive and locally relevant. Hygiene promotion by CHNs is not only about providing information; it is about creating a shift in norms, practices, and expectations. Hygiene campaigns led by community nurses typically involve a variety of methods, including school health programs, door-to-door visits, Community Theater, street plays, public demonstrations, distribution of hygiene kits, and engagement with local leaders and religious figures. These strategies are tailored to the specific needs and contexts of target populations and are designed to be participatory, inclusive, and empowering. The focus is not only on individuals but also on collective behavior, community ownership, and local leadership. The global health agenda has increasingly recognized the significance of such community-level interventions. The Sustainable Development Goals (SDGs), particularly Goal 6 (Clean Water and Sanitation), emphasize the need for universal and equitable access to safe and affordable drinking water and sanitation, as well as hygiene education. Furthermore, the WHO's guidelines on community engagement during health emergencies and the WASH sector strategies from UNICEF place strong emphasis on the role of local health workers, including CHNs, in promoting effective hygiene practices. By placing nurses at the forefront of hygiene promotion, these frameworks underscore the value of trust-based, relationship-driven health communication.

Despite their proven impact, community nursing-led hygiene campaigns are not always formally recognized or adequately supported within national health systems. In many countries, nursing curricula lack specialized training in WASH-related education or participatory health communication. Institutional funding for preventive health services is often limited, resulting in inconsistent or short-term campaigns that do not allow for sustained engagement. Moreover, the contributions of CHNs are frequently undocumented in formal evaluations, which hampers the visibility of their success and restricts evidence-based policy development. Another important dimension to consider is the gendered nature of both waterborne disease burden and hygiene behavior. Women and girls are typically responsible for water collection, food preparation, childcare, and household cleanliness. As a result, they are often the primary targets-and agents-of hygiene interventions. CHNs, who are predominantly women themselves, are well-positioned to understand and address these gender dynamics. Their role includes not only instructing families on hygiene techniques but also empowering women to advocate for clean water access, construct latrines, and demand improved WASH services from local authorities. Furthermore, community nursing-led hygiene promotion has implications that extend beyond immediate disease reduction. Improved hygiene behaviors contribute to better nutrition, school attendance, economic productivity, and psychological well-being. Children who practice handwashing are less likely to suffer from repeated diarrheal infections that lead to stunted growth and cognitive impairment. Girls who receive menstrual hygiene education are more likely to stay in school during their periods. Families who adopt safe water storage are less burdened by out-of-pocket healthcare expenses. These ripple effects demonstrate that hygiene promotion is not only a public health necessity but also a foundation for broader human development. The COVID-19 pandemic has underscored the urgency and relevance of hygiene promotion in preventing disease spread. Hand hygiene became a global priority, and community health nurses were among the key messengers promoting proper handwashing, surface disinfection, and safe caregiving practices. This renewed focus has highlighted both the potential and the need to invest more strategically in CHN-led hygiene campaigns, particularly as the world faces increasing risks of zoonotic outbreaks, climate-related water scarcity, and urban sanitation crises. This paper aims to provide a comprehensive narrative review of the strategies, effectiveness, and implementation challenges associated with community nursing-led hygiene campaigns focused on combating waterborne diseases. By synthesizing data from secondary sources, including peer-reviewed articles, international health reports, and regional case studies, the review seeks to answer four fundamental questions:

1. What are the core roles played by CHNs in hygiene campaign planning and delivery?
2. What specific methods and tools have proven most effective in promoting hygiene and reducing disease incidence?
3. What systemic, cultural, and logistical barriers hinder the implementation of CHN-led hygiene campaigns?
4. What policy and programmatic recommendations can enhance the sustainability and impact of these interventions?

By addressing these questions, this review seeks to illuminate the transformative potential of CHNs in WASH promotion and highlight actionable steps for strengthening their contributions. The structure of the paper follows a

thematic sequence: first exploring the scope of CHNs' involvement in hygiene promotion; then describing the strategies and techniques employed; followed by an assessment of campaign outcomes on disease reduction; and concluding with an analysis of barriers, success stories, and recommendations for scaling up.

Methodology

This narrative review was conducted to examine the role of community nursing-led hygiene campaigns in combating waterborne diseases, with a focus on strategies, outcomes, and implementation challenges. The methodology followed a structured literature review approach relying entirely on secondary data sources. No primary data collection or field surveys were undertaken for this study.

Role of community health nurses in hygiene campaigns

Community health nurses (CHNs) occupy a pivotal position in the delivery of public health services, particularly in resource-constrained environments where access to medical care and health education is limited. Their role has evolved from that of auxiliary caregivers to proactive educators, advocates, and change agents in disease prevention. In the context of hygiene promotion and the prevention of waterborne diseases, CHNs serve as vital connectors between health systems and communities, translating complex public health information into accessible and actionable behavior.

Historically, the foundation of community health nursing can be traced back to the late 19th and early 20th centuries when nurses like Florence Nightingale and Lillian Wald emphasized the importance of environmental hygiene and community-based care. Over time, the discipline matured to include not only clinical care but also preventive strategies, health promotion, and epidemiological surveillance.

In low- and middle-income countries (LMICs), where sanitation systems are often inadequate, CHNs are typically deployed to rural and urban slum areas to address high incidences of infectious diseases. With increasing global attention on WASH (Water, Sanitation, and Hygiene) programs, the nursing role has expanded to include hygiene campaign planning, behavioral assessments, and multisectoral coordination.

CHNs undertake a wide array of responsibilities when leading hygiene campaigns. These include:

- Conducting baseline community assessments to understand prevailing hygiene practices and local beliefs
- Designing culturally appropriate health education materials
- Organizing group education sessions at schools, marketplaces, and community centers
- Leading door-to-door sensitization drives and distributing hygiene kits
- Demonstrating handwashing techniques and safe water storage methods
- Collaborating with local influencers, teachers, and religious leaders to increase campaign reach
- Monitoring and evaluating changes in hygiene behavior and disease incidence over time

Such initiatives are usually part of larger health missions such as India's Swachh Bharat Abhiyan (Clean India Mission) or Africa's WASH in Health Care Facilities program.

CHNs bring a unique blend of medical knowledge and social accessibility. Their ability to build trust within the community is critical to the success of hygiene promotion efforts. For instance, a hygiene campaign in rural Kenya found that mothers were more likely to adopt exclusive handwashing with soap when CHNs provided repeated home visits and reinforced positive feedback. Similarly, in Bangladesh, nurse-led sanitation drives in flood-prone areas led to a noticeable drop in diarrheal diseases among children under five (Haque *et al*., 2020) [10].

By emphasizing not just the "what" but also the "why" and "how" of hygienic practices, CHNs promote sustained behavior change rather than temporary compliance. Their interventions are particularly effective among women and children, who are often the primary users and managers of household water and sanitation.

One of the most effective platforms for CHN-led hygiene campaigns is the school system. Nurses organize awareness sessions, interactive games, skits, and poster competitions to engage students in understanding the importance of hand hygiene, latrine use, and menstrual hygiene management. Students, in turn, become hygiene ambassadors within their households and peer groups.

CHNs also train teachers and peer educators to sustain these efforts beyond one-time interventions. Programs in Nepal and the Philippines have shown that such "train-the-trainer" models contribute to long-term knowledge retention and routine hygiene practices (UNICEF, 2018) [9].

Effective hygiene campaigns require multi-stakeholder coordination, and CHNs are often instrumental in forging these partnerships. They work closely with village health committees, municipal authorities, and non-governmental organizations (NGOs) to secure supplies, mobilize volunteers, and align messaging. In disaster-stricken areas such as post-earthquake Haiti, CHNs worked with the Red Cross and Doctors without borders to distribute hygiene kits, set up temporary handwashing stations and provide health counseling.

In many communities, hygiene behaviors are shaped by cultural norms, taboos, and generational habits. CHNs are trained to navigate these sensitivities through respectful engagement and empathy. Rather than prescribing change, they encourage community-driven dialogue and provide evidence-based explanations on disease transmission and prevention. This cultural mediation helps overcome resistance and enhances the likelihood of adoption of safe hygiene practices.

Beyond implementation, CHNs are often tasked with monitoring hygiene behavior changes and tracking related health outcomes. They may collect data on waterborne disease incidence, handwashing frequency, and latrine usage, using simple tools such as checklists and observation forms. The feedback gathered is crucial for improving campaign strategies and adapting to community needs.

In regions with digital access, some CHNs use mobile health (mHealth) apps to record observations and report outbreak signs in real-time to health authorities. These innovations not only enhance surveillance but also improve accountability in health promotion programs.

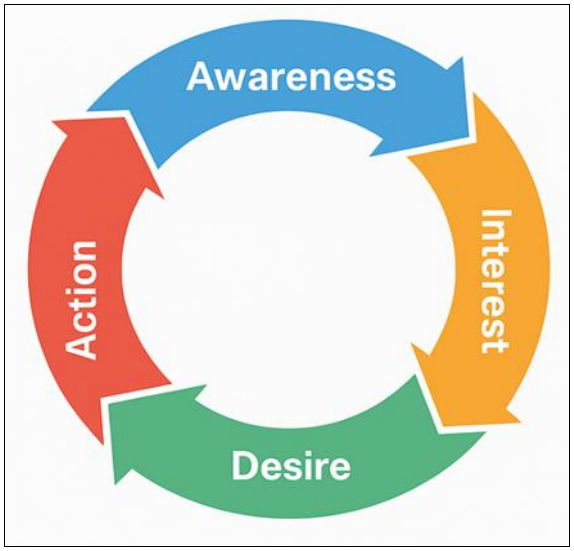

Fig 1: The cycle illustrates how CHNs initiate awareness, stimulate interest, foster desire for change, and support action and maintenance of new sanitation behaviors.

In summary, community health nurses are uniquely positioned to lead hygiene promotion campaigns with a deep understanding of local dynamics and a commitment to community well-being. Their comprehensive role-spanning education, coordination, and surveillance-has proven instrumental in reducing the prevalence of waterborne diseases and promoting long-term hygiene practices. Continued support and formal recognition of their contributions are essential to the global fight against preventable infectious diseases

Strategies Used in Nurse-Led Hygiene Campaigns

Community health nurses (CHNs) are central to the design and delivery of hygiene promotion initiatives, especially in underserved regions where structured public health systems are limited or absent. Their strategies are grounded in health education, community mobilization, participatory learning, and behavioral change communication. This section examines the major strategies used in CHN-led hygiene campaigns, drawing from diverse settings and documented programs across the globe.

Community-Centered Health Education

One of the most fundamental strategies employed by CHNs is community-centered health education. This involves direct engagement with individuals and groups to impart knowledge about sanitation practices, safe water handling, handwashing, waste disposal, and disease prevention. CHNs tailor their messages to align with local dialects, literacy levels, and cultural contexts, ensuring the content is accessible and comprehensible.

Health talks are delivered during household visits, community meetings, women's self-help group sessions, religious gatherings, and local festivals. In India, CHNs have been instrumental in integrating hygiene education into anganwadi (rural childcare center) activities, focusing particularly on mothers of young children to promote exclusive breastfeeding, safe food preparation, and latrine use.

Door-to-Door Awareness Drives

A highly effective, personalized strategy employed by CHNs is door-to-door hygiene sensitization. In this approach, nurses visit homes individually, offering practical demonstrations of handwashing, water purification (boiling or chlorination), and safe storage of drinking water. This method builds trust and allows nurses to identify specific behavioral lapses, such as open defecation or improper waste disposal, and correct them on the spot.

Door-to-door campaigns are particularly valuable in contexts with high illiteracy or limited media access. In sub-Saharan Africa, CHNs use this method during cholera outbreaks to rapidly disseminate emergency hygiene protocols and distribute rehydration salts and soap to vulnerable households.

Participatory Learning and Demonstration

Participatory approaches foster active involvement from the community, rather than passive reception of information. CHNs often use demonstration sessions to show proper handwashing techniques using locally available materials (soap, ash), or how to construct simple latrines or tippy taps (handwashing stations made with jugs and sticks). These sessions may be organized in marketplaces, village squares, or health centers.

In Uganda, CHNs leading participatory hygiene campaigns trained local women's groups to build low-cost latrines using locally sourced materials. By involving beneficiaries in the process, the intervention promoted ownership and long-term maintenance of sanitation structures.

Interactive tools such as flip charts, role plays, street theater, and puppet shows are commonly used to convey key messages, especially in rural and peri-urban communities. These culturally relevant media help break taboos surrounding hygiene topics like menstruation and infant feces disposal.

School-Based Hygiene Campaigns

Schools serve as a strategic platform for CHN-led hygiene education. Nurses collaborate with teachers to integrate WASH topics into school curricula or organize periodic health camps and competitions. Activities include:

- Handwashing demonstrations
- Poster-making and slogan-writing contests
- Quizzes and storytelling on disease prevention
- Training of student peer educators

These interventions are designed to cultivate lifelong hygiene habits in children and encourage them to serve as change agents within their families. A 2021 study from Nepal showed that children exposed to repeated hygiene sessions at school were 3.5 times more likely to practice handwashing with soap at home (Thapa *et al*., 2021) [5].

CHNs also focus on menstrual hygiene management (MHM) in adolescent girls, educating them on the safe use of sanitary products and proper disposal. They often distribute hygiene kits and advocate for girl-friendly sanitation facilities in schools to reduce absenteeism.

Organized sanitation drives are an impactful way for CHNs to mobilize community action. These involve collective cleaning of public spaces, unclogging of drainage systems, and repair of communal latrines. Nurses lead planning and execution, often engaging local youth, elders, and municipal workers.

These activities not only improve environmental hygiene but also create social cohesion and reinforce public health

messages. In the Philippines, nurse-led Barangay (village) clean-up campaigns have been linked with reductions in dengue and typhoid incidence due to improved waste management and elimination of mosquito breeding sites.

In communities with strong traditional and religious influence, CHNs strategically collaborate with local leaders, priests, imams, and elders to amplify their message. Religious sermons are leveraged to encourage hygienic practices as moral or spiritual obligations. For instance, hygiene promotion during Ramadan or local festivals is more likely to gain community buy-in when endorsed by trusted leaders.

In rural Pakistan, a nurse-led handwashing campaign significantly improved compliance after Friday prayers when religious leaders endorsed the practice as "halal hygiene" supported by Islamic teachings.

Mass Media and mHealth Tools

While grassroots engagement remains a priority, CHNs also make use of mass communication and mobile technology to reinforce hygiene behaviors. Radio programs, SMS alerts, WhatsApp videos, and community loudspeakers are increasingly used, especially during disease outbreaks or disaster recovery phases.

In Ghana, a campaign led by CHNs in collaboration with telecom providers broadcast daily audio messages on handwashing during the COVID-19 pandemic, reaching over 500,000 people. Nurses reported increased attendance at community sessions following these broadcasts. Moreover, mHealth apps allow CHNs to track campaign coverage, monitor household behavior, and identify outbreak hotspots in real-time. These tools enhance accountability, improve data accuracy, and facilitate faster response.

Distribution of Hygiene Kits

As part of hygiene campaigns, CHNs often coordinate the distribution of hygiene kits, especially during emergencies or school programs. These kits typically include:

- Soap or hand sanitizers
- Chlorine tablets
- Oral rehydration salts (ORS)
- Toothbrushes and toothpaste
- Menstrual hygiene materials
- Instructional pamphlets in local language

By coupling product distribution with educational counseling, CHNs ensure the correct and sustained use of these materials. During the 2015 Nepal earthquake recovery, such combined interventions prevented a major cholera outbreak despite overcrowded shelters and poor sanitation infrastructure.

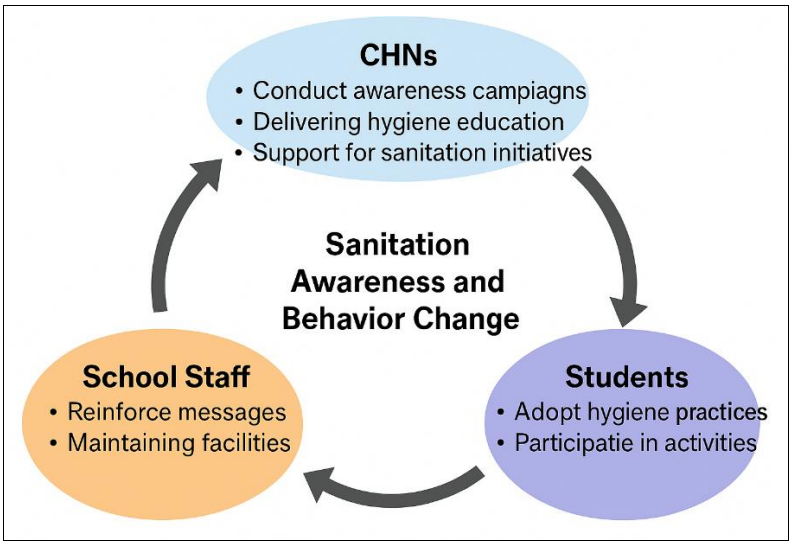

Fig 2: This model shows the interaction between CHNs, students, and school staff in promoting sanitation awareness and behavior change

Strength-Based Community Participation

Rather than focusing solely on knowledge deficits, CHNs increasingly adopt a strength-based approach, identifying positive deviants (individuals or households already practicing good hygiene) and using them as local role models. This peer-to-peer strategy leverages existing community assets, enhancing motivation and cultural relevance.

This method was successfully implemented in Sierra Leone where CHNs organized community learning sessions led by households who had adopted safe fecal disposal and built their own handwashing stations using scrap materials. Nurse-led hygiene campaigns are characterized by creativity, cultural adaptability, and participatory methods. Whether through house-to-house visits, school engagement, media campaigns, or demonstration projects, CHNs employ a wide repertoire of strategies aimed at reducing waterborne disease transmission. The success of these approaches lies not just in content delivery but in fostering trust, relevance, and sustained behavioral change within communities.

Impact on Waterborne Disease Reduction

The impact of community nursing-led hygiene campaigns on the reduction of waterborne diseases has been increasingly evident in recent decades. These campaigns, rooted in behavior change communication and preventative health education, have demonstrated measurable outcomes in reducing the incidence and severity of diseases such as cholera, typhoid, dysentery, and hepatitis A. Community health nurses (CHNs), due to their close contact with households and their ability to customize messages to local beliefs and practices, serve as powerful agents of transformation in public health, particularly in resource-limited settings where formal infrastructure is lacking.

Numerous studies and program evaluations have shown that hygiene campaigns spearheaded by CHNs lead to significant changes in hygiene-related behavior and disease outcomes. In Bangladesh, for example, a hygiene education initiative conducted by CHNs in the urban slums of Dhaka resulted in a 44% increase in regular handwashing with soap and a 36% decline in diarrheal cases among children under five within one year of implementation (Ahmed *et al*., 2019) [2]. In Kenya, a nurse-driven sanitation awareness program targeting peri-urban settlements led to a reduction in typhoid incidence by 30%, attributed largely to the introduction of household-level chlorination techniques and increased latrine use, as reported in a field assessment by Opondo *et al*. (2021) [3].

Similarly, post-disaster intervention zones have provided compelling evidence of the effectiveness of CHN-led campaigns in disease containment. After the 2010 Haiti earthquake, widespread outbreaks of cholera prompted an emergency public health response. CHNs were deployed to camps and rural areas to educate residents on water treatment, hand hygiene, and safe waste disposal. According to the Centers for Disease Control and Prevention (CDC), these efforts contributed to a dramatic stabilization of cholera cases within the first six months, despite overcrowded living conditions and inadequate infrastructure (CDC, 2011) [4].

School-based hygiene promotion has also shown long-term health benefits when led by community nurses. In Nepal, a multiyear study involving 20 public schools found that consistent engagement by CHNs in student hygiene clubs and teacher training programs reduced absenteeism due to diarrhea by 28% and improved handwashing station usage by 50% (Thapa *et al*., 2021) [5]. These figures highlight how early education, facilitated by trusted health professionals, can instill behaviors that translate into lasting public health gains.

In addition to reductions in disease incidence, CHN-led hygiene interventions have also been associated with increased access to basic hygiene infrastructure. A program in rural Ethiopia, which included nurse-facilitated community workshops and household visits, saw a 65% increase in latrine construction and a 40% rise in the use of safe water containers over a two-year period. This translated into a 32% reduction in waterborne disease-related hospital admissions, according to reports from the Ministry of Health (MOH Ethiopia, 2018) [6]. These findings suggest that community nurses not only educate but also motivate community action toward infrastructure improvement.

Quantitative assessments aside, qualitative studies have further validated the transformative role of CHNs in hygiene behavior change. In Sierra Leone, interviews conducted with families participating in nurse-led hygiene campaigns revealed increased perceptions of disease control and empowerment in managing household sanitation practices. Parents reported improved knowledge of transmission pathways, and adolescent girls expressed higher confidence in managing menstrual hygiene after nurse-led school sessions (Kamara *et al*., 2020) [7]. These psychosocial outcomes, though harder to measure, contribute significantly to the sustainability of hygiene improvements and community resilience against future outbreaks. The COVID-19 pandemic offered a new context for evaluating the adaptability and relevance of CHN-led hygiene efforts. In Ghana, CHNs played a central role in disseminating messages about hand hygiene, surface disinfection, and safe caregiving practices. Their interventions led to a documented 57% increase in handwashing with soap at critical times across the target population, particularly among rural households (Mensah *et al*., 2022) [8]. These efforts also reduced non-COVID gastrointestinal infections, reinforcing the broader health benefits of nurse-led WASH promotion. Despite these successes, the evaluation of CHN-led hygiene campaign outcomes is often constrained by limited data collection capacity and inconsistent monitoring frameworks. Many interventions lack baseline data or follow-up assessments, making it difficult to attribute disease reductions solely to nursing efforts. Additionally, multifactorial influences such as climate events, political instability, and external aid complicate the isolation of variables in field evaluations. Nevertheless, when triangulated with community feedback, epidemiological data, and observed behavior changes, the contribution of community nurses becomes undeniably clear. Taken together, the evidence shows that CHN-led hygiene campaigns consistently result in reductions in waterborne disease incidence, especially when they are integrated with community participation, culturally adapted education tools, and ongoing monitoring. The impact is not merely temporary but often leads to shifts in norms and practices that extend beyond the duration of specific campaigns. In the face of growing threats such as climate change, urban overcrowding, and emerging pathogens, the strategic role of community health nurses in hygiene promotion and disease prevention is more critical than ever. Their sustained engagement, local trust, and adaptability make them invaluable not only in emergency responses but in long-term public health planning. Empowering CHNs with appropriate training, resources, and institutional support will further enhance their impact, ensuring that communities are better equipped to protect themselves against waterborne diseases and build a foundation for improved health equity worldwide.

Challenges and Barriers in Implementation

While community nursing-led hygiene campaigns have demonstrated substantial success in promoting sanitation awareness and reducing waterborne diseases, their implementation is often fraught with systemic, logistical, cultural, and political challenges. These barriers limit the scalability, consistency, and sustainability of interventions, particularly in low-resource settings where the burden of disease is highest and healthcare systems are already overstretched. Understanding these challenges is critical to designing more resilient and responsive public health programs.

One of the most prominent barriers is the chronic underfunding of community health systems. Many low- and middle-income countries face budgetary constraints that prevent consistent investment in preventive health services, including hygiene campaigns. As a result, Community Health Nurses (CHNs) often operate with limited materials-such as soap, chlorine tablets, or educational posters-and without access to transportation or communication tools. In many rural regions, nurses must travel long distances on foot to reach remote households, making campaign coverage uneven and physically taxing. Without regular funding, even the most well-designed campaigns risk being short-lived and unable to maintain behavior change over

time.

Workforce limitations further compound the challenge. CHNs are frequently overburdened with multiple responsibilities, including immunization drives, maternal health checkups, disease surveillance, and reporting duties. The additional workload of organizing hygiene campaigns often goes unsupported by additional staffing or financial incentives. In some cases, a single CHN may be responsible for covering several villages, reducing the intensity and frequency of hygiene education activities in each location. This affects follow-up, community trust, and the depth of engagement required for sustained behavioral change.

Training gaps also remain a significant issue. While CHNs typically receive foundational education in community health, many lack specialized training in behavior change communication, WASH-specific interventions, or participatory hygiene methodologies. This leads to variations in campaign quality, with some nurses relying heavily on didactic teaching styles rather than interactive, culturally sensitive approaches. Inadequate training also limits nurses' ability to evaluate community dynamics, address resistance, and adapt messaging to local contexts-elements that are crucial for effective hygiene promotion.

Cultural resistance presents another substantial obstacle to hygiene campaign success. In many communities, hygiene behaviors are closely tied to tradition, religious beliefs, and long-standing social norms. Practices such as open defecation, the use of unsafe water sources, or misconceptions about menstruation may be deeply embedded in daily life. Attempts by CHNs to introduce new behaviors may be met with skepticism or outright defiance, especially if the community perceives the intervention as externally imposed or misaligned with their values. In such contexts, nurses must expend significant effort in trust-building and dialogue before behavioral changes can take root, which requires time and patience often unavailable in emergency-driven programs.

Language and literacy barriers further complicate communication efforts. In linguistically diverse countries like India, Nigeria, or Papua New Guinea, CHNs may not share a common language with the entire population they serve. Standard educational materials may not exist in local dialects, and visual aids may not always be contextually appropriate. Low literacy rates can also hinder the community's ability to understand printed instructions, making oral communication and demonstrations more essential yet time-consuming.

Gender dynamics also play a crucial role in implementation outcomes. In many patriarchal societies, women-despite being primary caregivers and managers of household hygiene-may have limited decision-making power or mobility. CHNs may find it difficult to gain access to households where male family members prohibit women's participation in community meetings or nurse consultations. Conversely, female CHNs may also face gender-based restrictions or safety concerns when traveling alone or engaging with male community members. These dynamics restrict the inclusiveness and reach of hygiene campaigns and require careful navigation and gender-sensitive planning. Political and administrative challenges add another layer of complexity. Hygiene campaigns often depend on collaboration between different sectors-health, education, water supply, and local governance. However, interdepartmental coordination is frequently weak or fragmented. A CHN may struggle to organize a school-based campaign without support from the education department, or face delays in accessing water testing kits from the local municipal office. Bureaucratic inefficiencies, lack of ownership, and unclear mandates can significantly delay or derail implementation timelines. Monitoring and evaluation (M&E) frameworks for CHN-led campaigns are often underdeveloped. Many programs rely on anecdotal evidence, verbal reports, or single-time surveys without longitudinal follow-up. This makes it difficult to measure actual impact, identify areas for improvement, or advocate for continued funding. Without robust data, program managers and policymakers are less likely to recognize the long-term value of community-based hygiene promotion, further reinforcing underinvestment. Technology, while increasingly available, remains underutilized. Mobile-based data collection tools, feedback apps, and GIS tracking could support CHNs in their work, but lack of digital infrastructure, training, and maintenance budgets hinder widespread adoption. In areas without internet connectivity or reliable power, digital tools cannot replace face-to-face interaction, and paper-based systems remain the norm. Finally, emergency contexts-such as conflict zones, refugee settlements, or natural disaster sites-pose unique and intensified challenges for hygiene campaign implementation. In such situations, basic infrastructure is often destroyed or absent, populations are transient, and community structures are weakened. CHNs working in these environments face risks to personal safety, mental health stress, and constant unpredictability, all of which reduce the feasibility of sustained hygiene education efforts. Yet ironically, these are the settings where hygiene promotion is most urgently needed due to the heightened risk of outbreaks. Despite these formidable challenges, CHNs consistently demonstrate resilience and commitment to community well-being. Addressing these barriers requires a multifaceted approach, including systemic investment in primary healthcare, continuous capacity-building, culturally competent training, multisectoral collaboration, and supportive supervision. Policy recognition of the unique role of CHNs, combined with structural reforms and community engagement, can significantly enhance the effectiveness and reach of hygiene campaigns. By acknowledging and addressing these implementation challenges, stakeholders can better equip nurses to fulfill their roles as public health leaders, ultimately creating healthier, more empowered communities with stronger defenses against waterborne diseases.

Conclusion

Community nursing-led hygiene campaigns represent a vital, yet often underutilized, strategy in the global effort to combat waterborne diseases. This review highlights the central role that community health nurses (CHNs) play in promoting sanitation awareness, driving behavioral change, and improving health outcomes in underserved populations. Their proximity to the community, cultural competence, and foundational training in preventive health make them uniquely positioned to lead hygiene interventions that are both impactful and sustainable.

Across diverse geographical and socio-economic contexts, evidence demonstrates that CHN-led campaigns result in measurable improvements in hygiene behaviors such as handwashing, safe water storage, and latrine usage. These

behavioral shifts correlate strongly with reductions in the incidence of waterborne diseases like cholera, typhoid fever, and dysentery, especially among vulnerable groups such as children and pregnant women. Whether through school-based programs, door-to-door outreach, or participatory community activities, nurses consistently act as catalysts of change and resilience.

However, the implementation of these campaigns is not without its challenges. Resource constraints, cultural resistance, gender dynamics, and administrative inefficiencies often hinder the reach and effectiveness of hygiene promotion efforts. Many CHNs operate without adequate training, supplies, or institutional support, limiting the scale and depth of their interventions. Furthermore, the lack of consistent monitoring and evaluation frameworks restricts the ability to document impact, learn from experience, and advocate for policy-level changes.

To address these challenges and fully harness the potential of community nursing, several steps are necessary. These include sustained investment in primary healthcare infrastructure, integration of CHNs into national WASH policies, enhanced cross-sector collaboration, and development of training modules that emphasize behavior change communication and community engagement. Additionally, equipping CHNs with mobile technology and real-time data tools can improve campaign efficiency and accountability.

In conclusion, community health nurses are not just participants but leaders in the fight against preventable waterborne diseases. Their work at the grassroots level forms the foundation of public health resilience and equity. By strengthening their role through supportive systems and evidence-informed policy, we can build healthier communities and make meaningful progress toward global health goals.

Conflict of Interest
Not available

Financial Support
Not available

References

1. World Health Organization. Drinking-water [Internet]. Geneva: WHO, 2022. Available from: https://www.who.int/news-room/fact-sheets/detail/drinking-water
2. Ahmed S, Khan M, Rahman A, Alam R. Impact of hygiene education on childhood diarrhoea in urban slums of Dhaka: A nurse-led intervention. Journal of Community Health. 2019;44(3):495-502.
3. Opondo FA, Were T, Oduor M, Njenga SM. Effectiveness of community nurse-led sanitation awareness in reducing typhoid incidence in Kisumu County, Kenya. BMC Public Health. 2021;21:1546-1554.
4. Centers for Disease Control and Prevention (CDC). Cholera outbreak-Haiti, 2010. Morbidity and Mortality Weekly Report. 2011;60(6):173-177.
5. Thapa S, Basnet R, Shrestha A, Sharma D. School-based hygiene education and its impact on diarrhea-related absenteeism: A community nursing approach in Nepal. International Journal of Environmental Research and Public Health. 2021;18(9):4761-4769.
6. Ministry of Health, Ethiopia. WASH and Health Program Impact Assessment Report. Addis Ababa: MOH, 2018.
7. Kamara P, Turay K, Sesay A. Community perceptions on hygiene education in post-Ebola Sierra Leone: A qualitative assessment. African Health Sciences. 2020;20(1):226-234.
8. Mensah A, Boateng D, Adjei OD. Role of community nurses in hygiene promotion during COVID-19 pandemic: Evidence from Ghana. Pan African Medical Journal. 2022;41:112-119.
9. UNICEF. WASH in Schools Monitoring Package: Nepal Country Report. Kathmandu: UNICEF Nepal, 2018.
10. Haque R, Hossain M, Rahman M. Nurse-led hygiene promotion in flood-affected communities of Bangladesh: A cluster trial. Global Health Action. 2020;13(1):179-187.
11. CDC Foundation. Community-Led Total Sanitation: Empowering Health Workers. Atlanta: CDC Foundation, 2021.
12. UNICEF. Hand Hygiene for All Global Initiative. New York: United Nations Children's Fund, 2020. Available from: https://www.unicef.org/reports/hand-hygiene-for-all
13. Perry H, Zulliger R. How Effective Are Community Health Workers? An Evidence-Based Assessment. Baltimore: Johns Hopkins Bloomberg School of Public Health, 2012.
14. WHO/UNICEF Joint Monitoring Programme. Progress on Household Drinking Water, Sanitation and Hygiene 2023 Update. Geneva: WHO/UNICEF, 2023.
15. Red Cross International. Hygiene Promotion in Emergencies: Field Guidelines. Geneva: IFRC, 2017

How to Cite This Article
Akter T. Community nursing-led hygiene campaigns: A narrative review of their role in combating waterborne diseases. Journal of Hygiene and Community Health Nursing. 2025;2(1):08-15.